

1. Introduction

- 1.1. Introduction
- 1.2. User Instruction

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1.1.1 Background

The AASHTO Task Force on Hydrology and Hydraulics, in cooperation with the FHWA Rural Technical Assistance Program and the Transportation Research Board, National Cooperative Highway Research Program, has assisted in writing this Drainage Manual. This manual does not set AASHTO design policy and procedures. The AASHTO Task Force has incorporated its numerous years of experience into this comprehensive drainage manual to provide guidance on most aspects of highway drainage. Design theories, concepts, manuals, policies, and procedures are condensed and written for use by the designer. Where appropriate, we have given or referenced relevant existing AASHTO guidelines. The Alaska Department of Transportation and Public Facilities has reviewed and set all design policies and procedures herein.

The manual has been developed to give designers a basic working knowledge of hydrology and hydraulics complete with, in some cases, example problems. All basic design elements are included so that designers can design highway drainage with minimal assistance. However, this manual cannot provide guidance on complex hydrologic or hydraulic problems and is no substitute for experience or engineering judgment.

1.1.2 Manuals and Computer Programs

References to specific computer programs, AASHTO guidelines, manuals, and regulations will be noted within this manual. We anticipate designers will be knowledgeable in the use of the referenced items. This manual cannot incorporate computer program user manuals or stay up-to-date with these programs and the latest drainage-related federal regulations. Each chapter has been written based on generic design policies. The designer and issuing agencies should keep themselves up-to-date by contacting either their local, state, or federal hydrology/hydraulic departments.

1.1.3 Format

Chapter contents are listed on the first page of each chapter as a navigation aid. Any reference in this manual to “the Department” or “DOT&PF” refers to

the Alaska Department of Transportation and Public Facilities.

1.1.4 References

Where you may need detailed source material, we have given references. The reference section at the end of each chapter includes these source documents and recommended additions (bold print) to your reference library.

1.1.5 Updates

The Department plans to issue periodic updates to this manual. Please note the revision date in the footer for each chapter. Visit the DOT&PF publications site at www.state.ak.us/stwddes/dcs/pubs.html to determine whether more recent revisions are available for download. For questions concerning revisions or downloads, contact:

Statewide Hydraulic Engineer
Alaska Department of Transportation and
Public Facilities
Bridge Design Section
3132 Channel Drive
Juneau, AK 99801

1.2 User Instruction

This manual has been published to outline the basic principles of hydraulic design as they affect highway drainage problems. This manual is not meant to be a textbook for all aspects of drainage problems, but rather a guide to be used with sound engineering judgment to obtain safe and economical designs.

An economical hydraulic design is not possible without adequate field survey information. Field survey, maintenance, and design personnel should review or become acquainted with the sections pertaining to acquisition of field data.

Since the manual is intended for the broadest possible use, there will be chapters applicable only to certain sections within the Department. For delineation of areas of responsibility in hydraulic design, refer to the DOT&PF *Alaska Preconstruction Manual*, Part II.